

AMENDMENTS TO THE CLAIMS

The following claim listing is to replace all prior versions, and listings, of claims in the application.

LISTING OF THE CLAIMS:

Claim 1. (Currently Amended): An isolated *Marchantiales*-derived ~~gene that hybridizes under stringent conditions with all of or part~~ nucleic acid having at least 90% identity to the nucleotide sequence of SEQ ID NO: 1 or a complementary sequence thereof, ~~[[and]] wherein said gene~~ the nucleic acid encodes a protein having $\Delta 6$ fatty acid desaturating activity.

Claim 2. (Currently Amended): The isolated ~~[[gene]]~~ nucleic acid of claim 1, wherein ~~said gene (a) the nucleic acid~~ consists of ~~[[a]] the nucleotide sequence of SEQ ID NO: 1, or (b) hybridizes under stringent conditions to SEQ ID NO: 1 or a complementary sequence thereto.~~

Claim 3. (Currently Amended): The isolated ~~[[gene]]~~ nucleic acid of claim 1, wherein ~~said gene (a) comprises a the nucleic acid consists of the nucleotide sequence of nucleotides 253 to 1698 of SEQ ID NO: 1, or (b) hybridizes under stringent conditions to a nucleotide sequence comprising nucleotides 253 to 1698 of SEQ ID NO: 1, or a complementary nucleotide sequence thereto.~~

Claim 4. (Currently Amended): ~~An isolated gene encoding a *Marchantiales*-derived protein having $\Delta 6$ fatty acid desaturating activity, wherein said protein has an~~ The isolated nucleic acid of claim 1, wherein the nucleic acid encodes a protein having the amino acid sequence of SEQ ID NO: 2, or wherein said gene encodes a protein with an having the amino acid sequence that has been modified by substitution, deletion, insertion, and/or addition of one ~~or more~~ to ten amino acids of SEQ ID NO: 2.

Claims 5-17. (Canceled).

Claim 18. (Currently Amended): A recombinant expression vector ~~which comprises~~
a gene comprising the isolated nucleic acid of claim 1.

Claim 19. (Currently Amended): A non-human transformant comprising ~~[[a gene]]~~
the isolated nucleic acid of claim 1.

Claim 20. (Currently Amended): A plant ~~into which a gene expressing the isolated~~
nucleic acid of claim 1 ~~is expressed~~, a progeny of the plant, a vegetatively propagated plant
~~having the same characteristics of the plant~~, or a tissue of the plant, ~~wherein the isolated~~
nucleic acid of claim 1 is expressed in the progeny, the vegetatively propagated plant, or the
tissue.

Claim 21. (Currently Amended): ~~[[A]]~~ The plant of claim 20, wherein said plant
has a modified fatty acid composition, a progeny of the plant, a vegetatively propagated plant
~~having the same characteristics from the plant~~, or a tissue of the plant, ~~wherein the progeny~~,
the vegetatively propagated plant, or the tissue expresses the isolated nucleic acid of claim 1.

Claim 22. (Canceled).

Claim 23. (Currently Amended): A method of producing fatty acids comprising
growing ~~[[a]]~~ the plant of claim 20 and obtaining said fatty acids from said plant or plant
tissue.

Claim 24. (Canceled).

Claim 25. (Currently Amended): A method of modifying a fatty acid composition
comprising expressing ~~[[gene]]~~ the isolated nucleic acid of claim 1.

Claims 26-28. (Canceled).